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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,314	04/13/2004	Nco Chce Peng	303.772US2	4743
21186 7590 09/11/2007 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER HEINRICH, SAMUEL M	
			ART UNIT 1725	PAPER NUMBER
			MAIL DATE 09/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/823,314	PENG ET AL.	
	Examiner	Art Unit	
	Samuel M. Heinrich	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-53 is/are pending in the application.
- 4a) Of the above claim(s) 28-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claims 28-53 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 28, 2007.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,562,698 to Manor in view of USPN 6,420,245 to Manor and in view of US20010034564A1 to Jones and in view of US20020086137A1 to Brouillette et al.

Manor '698 describes (column 9, lines 16-32) dual laser cutting of wafers wherein "a pair of scribing and cutting laser beams are configured in-line". Manor '698 describes use of a YAG laser.

Manor '245 describes (e.g., Abstract) forming scribe lines with a laser and cutting through the scribe lines with a saw blade. Manor '245 describes laser scribing velocities can reach up to 600 mm/sec and describe saw blade dicing feed rate of 55 mm/sec.

Jones describes [0029] forming scribe lines with a cutting saw, dicing wheel, or laser beam. The use of the laser scribe with following blade cutting would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because in-line cutting is known and because the cutting tooling is known.

Brouillette et al describe forming a scribe groove in a wafer and subsequently sawing along the groove and describe [0002] the scribe depth of about half the thickness of the wafer or until the remaining wafer becomes about 30 microns thick.

Dicing with in-line laser and saw blade would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the simultaneous scribing and cutting is well known, the laser scribe with following blade cutting is very well known, and the idea of having a choice of saw, wheel, or beam is well known. Arranging a scribe and saw in particular combination would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the combination scribe and cut speeds handling and reduces processing time. The instant claimed scribe depth would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art depending on

Art Unit: 1725

the particular work piece. The particular dependent claim features would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because the particular laser, saw, speed, power, and refresh rates require routine analysis, choice, and experimentation with respect to a particular workpiece.

Claims 9, 15, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,562,698 to Manor in view of USPN 6,420,245 to Manor and in view of US20010034564A1 to Jones and in view of US20020086137A1 to Brouillette et al as applied to claims 8, 13, 16, and 24 above, and further in view of USPN 6,611,540 to Mueller. Mueller describes "low duty cycles" and laser light power levels of 100W to kilowatts used in industrial laser cutting. The use of an industrial laser would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art in order to provide continuous work on a production schedule.

Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,562,698 to Manor in view of USPN 6,420,245 to Manor and in view of US20010034564A1 to Jones and in view of US20020086137A1 to Brouillette et al as applied to claims 10 and 16 above, and further in view of USPN 3,691,707 to Von Arx et al. Von Arx et al describe well known wafer cutting with a diamond nickel saw and the use thereof would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art in order to cut with easily available apparatus.

Claims 17 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,562,698 to Manor in view of USPN 6,420,245 to Manor and in view of US20010034564A1 to Jones and in view of US20020086137A1 to Brouillette et al as

Art Unit: 1725

applied to claims 16 and 24 above, and further in view of USPN 6,008,069 to Yamada. Yamada discloses a rotary blade dicing feed speed of about 100 mm/sec and the use thereof would have been obvious at the time applicant's invention was made to a person having ordinary skill in the art because it provides rapid dicing and acceptable chipping.

Response to Arguments

Applicant's arguments filed February 21, 2007 have been fully considered but they are not persuasive. Applicant argues the description in Brouillette et al pertaining to forming a scribe groove in a wafer to a depth of about half the thickness or about 30 microns cannot be found. This description is in section [0002], on page 1, column 1, bottom half 'The dicing step is carried out by a half-cut method in which the wafer, as a single body, is diced to ½ of the thickness of the wafer or diced until the remaining wafer becomes about 30 microns thick'... "The half-cut method requires another dividing step."

Applicant has not argued many dependent claim limitations, however Examiner has now provided new grounds of rejection for some dependent claims in place of the earlier rejection description of routine analysis, choice, and experimentation.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazaki et al describe laser machining with "a duty ratio". Pernicka et al and Kobsa describe laser cutting with a "duty cycle". Collins describes a YAG laser and a diamond coated nickel dicing blade.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel M. Heinrich whose telephone number is 571-272-1175. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. Johnson can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Samuel M Heinrich
Primary Examiner
Art Unit 1725

SMH